

# Effectiveness of a Community-Based Health Promotion “Rethink Your Drink” on Reducing Sugary Beverage Consumption: A Case Study

*Case Study*

Priscilla Maghrabi<sup>1</sup>, Miranda Terry<sup>1</sup>

<sup>1</sup>Murray State University, Murray, KY

## Abstract

**Introduction:** Obesity rates are rising throughout the United States. As a way to address obesity in a rural city in southwest Kentucky, researchers conducted a “Rethink Your Drink” challenge. The purpose of this study was to evaluate the effectiveness of a community health program in reducing the consumption of sugary beverages.

**Methods:** Researchers conducted a “Rethink Your Drink” Challenge in a rural city in southwest Kentucky. Educational materials illustrated how beverages fell into red, yellow, or green light categories based on sugar content. Materials were provided to corporate sponsors throughout a rural city in southwest Kentucky. Community members (n=296) volunteered to track their beverage consumption over a 4-week period. Researchers collected data sheets at the end of the 4-weeks and analyzed change in beverage habits.

**Results:** Researchers calculated weekly sugar intake as: [(red drinks \* 3) + (yellow drinks \* 2.25) + (green drinks \* 0)]. Sugary beverage consumption decreased over the four weeks ( $t = 9.2, p < 0.001$ ).

**Conclusions:** A community health program addressing sugary beverage consumption is an effective method to bring awareness to the hidden sugars and calories, which lead to obesity and obesity related diseases.

**Key Words:** health programming, obesity, sweetened drinks

Corresponding author: PRISCILLA MAGHRABI, pmaghrabi@murraystate.edu

## Introduction

Nearly 90% of Americans consume sugar in excess of the daily recommendations.<sup>1</sup> The highest consumption occurs between the ages of 12-30 for males and 19-40 for females.<sup>2</sup> Of the added sugar in American diets, 46% comes from sugar-sweetened beverages, through soft drinks, fruit drinks, and sports drinks, which are readily available in schools, sporting events, and restaurants.<sup>3</sup> According to the 2005-2006 National Health and Nutrition Examination Survey, on average, soda, energy, and sports drinks supplied over 110 calories per day for youth and adults. Sugary beverages ranked third and fourth as top sources of calories for these age groups, respectively.<sup>4</sup> Not only is increased consumption of sugary beverages associated with dental conditions and

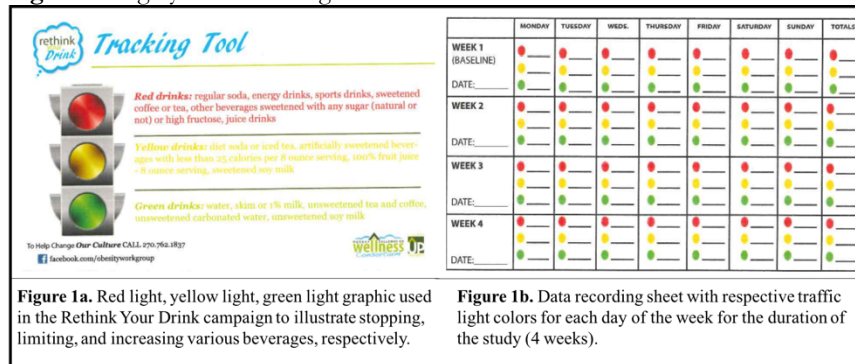
obesity, but also an increase in the likelihood of developing type 2 diabetes.<sup>5</sup> Individuals with type 2 diabetes pay 2.3 times more in medical care than individuals without diabetes,<sup>6</sup> which puts a financial toll on the individual and society. As Americans continue to consume excessively high levels of sugar, obesity rises, diabetes rises, and the overall health of the community decreases; therefore, community health programming and dietary options of less sugar need to be available.<sup>7-9</sup> Programming should emphasize that changing dietary behaviors should not be a short term quick fix for losing weight; it should, however, be a lifestyle change that results in healthier food selection which reduces weight and improves health.<sup>5,7</sup> Therefore, the purpose of this case study was to assess the effectiveness of a community health program to reduce sugary beverage consumption, as a response to an identified concern that obesity and substance abuse were of the greatest health concerns as indicated by the 2015 Community Needs Assessment. Almost 30% of the adult community members and nearly 20% of the youth are obese in the rural city in southwest Kentucky; therefore, the health coalition addressed the obesity concern through a “Rethink Your Drink” community health program.

**Methods**

A total of 296 participants completed the 4-week tracking tool. Recruitment information for the campaign was shared in television and radio commercials, and through a website. Participation in the study was voluntary and anonymous, no demographic or identifiable information was collected. The participants were informed of their rights through the educational material. Murray State University’s Institutional Review Board determined the study to be a program evaluation and exempt from review.

The campaign’s promotional material included images using traffic lights to illustrate the beverages that participants should stop, limit, or continue to drink based on sugar content (Figure 1a). Red drinks are those with over three teaspoons of sugar per 12 oz., while yellow drinks have 1.5 - 3 tsp. of sugar per 12 oz. container or contain artificial sweeteners, and green drinks have 0 to 1.25 tsp. of sugar per 12 oz.

**Figure 1.** Sugary drink tracking tool.



www.cdc.gov/healthyweight/healthy\_eating/drinks.html

Researchers went to corporate sponsors, including private, government, and educational organizations, and distributed campaign materials. The researchers encouraged organizations to include the “Rethink Your Drink” Challenge in their wellness initiatives and programs within their human resources office. Community members who were interested in reducing sugar intake completed a 1-week recall of beverages consumed to establish a baseline and developed a SMART goal for the next four weeks specific to the community member’s habits

and individual needs. The community members tracked drink consumption on an index card for the next three weeks (Figure 1b), then submitted the card to their human resources office for the researchers to pick up.

#### Statistical Analysis

The researchers calculated sugar per beverage as red drinks = 3 tsp., yellow drinks = 2.25 tsp., and green drinks = 0 tsp. Researchers calculated weekly sugar intake from beverages as: [(red drinks \* 3) + (yellow drinks \* 2.25) + (green drinks \* 0)]. Sugar consumption decrease was calculated as [week 1 sugar intake - week 4 sugar intake]. Researchers conducted a paired sample's t-test in SPSS 25.0 (IBM SPSS, Armonk, NY, USA) to determine if the "Rethink Your Drink" challenge resulted in a significant decrease in sugar consumption via beverages between week 1 and 4,  $p < 0.05$  *a priori*.

#### Results

Sugary beverage consumption decreased from week 1 to week 4 ( $t = 9.2$ ,  $p < 0.001$ ) as depicted in Table 1.

**Table 1.** Average number of drinks consumed in each category per week.

	Week 1 (SD)	Week 2 (SD)	Week 3 (SD)	Week 4 (SD)
Red	7.0 (9.9)	4.5 (7.0)	3.8 (5.9)	3.2 (5.9)
Yellow	8.5 (11.7)	7.5 (8.8)	7.3 (8.9)	6.7 (8.1)
Green	21.2 (16.2)	25.0 (17.2)	26.7 (18.5)	27.0 (18.5)

Mean (SD) = standard deviation

#### Discussion

The "Rethink Your Drink" Challenge was able to reduce one community's sugar intake. Community health efforts to reduce obesity and obesity related disease are greatly needed in the United States. By addressing sugary beverages in a rural city in southwest Kentucky, researchers were able to reduce sugar consumption in a 4-week period. Each American consumes on average 100 lbs. of sugar per year, which equals 34 teaspoons of sugar per day and about 500 calories.<sup>10</sup> The educational materials provided to the participants included alternative drink options (yellow or green light) that either had naturally occurring sugars or were less than three tsp of sugar per 12 oz. of fluid. It is important that educators or educational material not recommend replacing sugary beverages with artificially sweetened beverages or low-calorie sweeteners,<sup>8</sup> as those have health risks as well.

Throughout the United States, there have been many attempts to reduce sugar consumption, especially in beverages.<sup>10</sup> A few community policies include taxing sugary beverages at a greater rate or limiting ounces able to be purchased. Both of these practices have produced reductions in sugary beverage consumption. Researchers assessed if individuals were able to modify beverage choice simply by being educated and guided as to how to make alternative selections. Future implications of the study would be focusing the "Rethink Your Drink" Challenge among the local schools. This is an important target group; on average, soda, energy, and sports drinks supplied about 118 calories per day for children and adolescent, which ranked as third top source of calories for this age group.<sup>4</sup>

#### Media-Friendly Summary

Obesity was identified as one of the top health concerns among the citizens of a rural city in southwest Kentucky through the 2015 Community Needs Assessment. Almost 30% of the adult community members and nearly 20% of the youth are obese. A health coalition addressed the obesity concern through a 4-week community-based program, “Rethink Your Drink” Challenge, which aimed to decrease sugary beverage consumption. There were 296 tracking tools completed and returned from participants throughout the rural city in southwest Kentucky. After being provided educational material and developing SMART goals, participants decreased their sugary beverage consumption. Therefore, a community health program addressing sugary beverage consumption is an effective method to bring awareness to the hidden sugars and calories in beverages, which lead to obesity and obesity related diseases.

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